No. 616,554. Patented Dec. 27, 1898.

J. F. O'ROURKE.

RAZOR.

(Application filed Sept. 28, 1898.)

(No Model.)

Fig. 1.

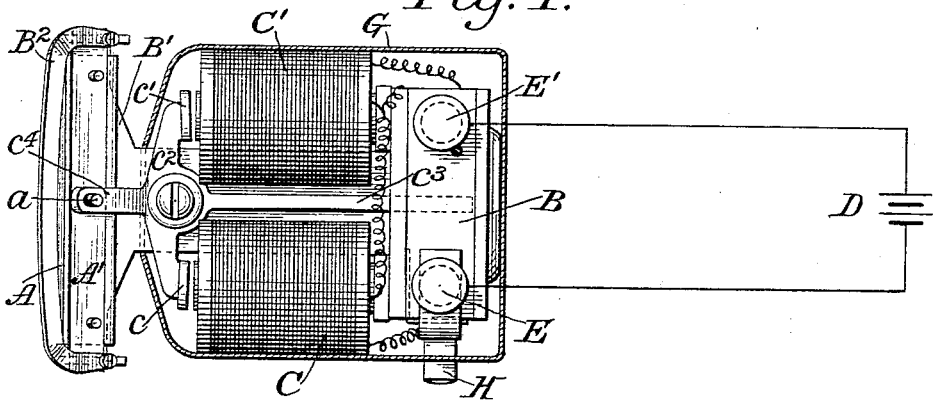


Fig. 2.

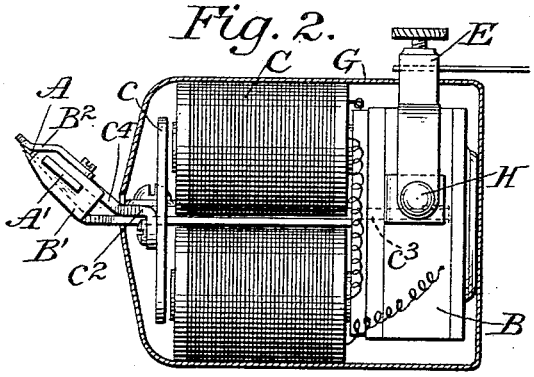
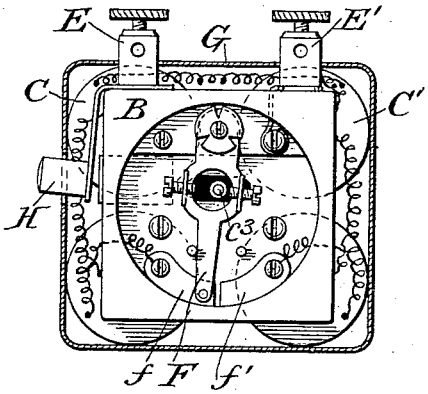


Fig. 3.



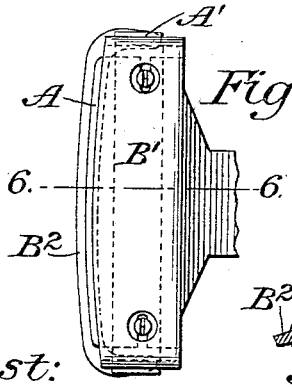
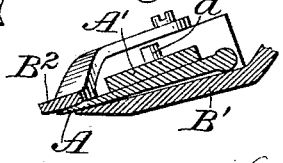


Fig. 4.

Fig. 6.



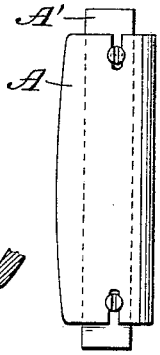


Fig. 5.

Attest:

A. N. Jesbera.

John M. Scobie.

Inventor:

John F. O'Rourke

by Redding, Riddle & Treley

Attys.

UNITED STATES PATENT OFFICE.

JOHN F. O'ROURKE, OF NEW YORK, N. Y.

RAZOR.

SPECIFICATION forming part of Letters Patent No. 616,554, dated December 27, 1898.

Application filed September 28, 1898. Serial No. 692,056. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. O'ROURKE, a citizen of the United States, and a resident of the city, county, and State of New York, have invented certain new and useful Improvements in Razors, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The object of this invention is to produce an automatic razor in which the necessary cutting motion of the blade shall be produced by a suitable motor, the operator being required only to move the razor over the face for operation on unshaved parts. When the edge of the razor is properly guarded, the device thus becomes an automatic safety-razor, capable of use under the most difficult conditions with absolute safety and with the greatest celerity in operation.

The invention is obviously capable of embodiment in various mechanical forms and arrangements and with motors of different kinds. One convenient and practical embodiment of this invention is illustrated in the accompanying drawings and described in detail hereinafter, for the purpose of explaining the invention and enabling its nature and the application thereof to be clearly understood.

In the drawings, Figure 1 is a plan view of a razor which embodies the invention, with the case or shell in section, a source of electric energy being indicated conventionally. Fig. 2 is a view in side elevation, with the case or shell in section. Fig. 3 is a rear end view of the parts shown in Figs. 1 and 2, also with the case or shell in section. Figs. 4 and 5 are detailed views illustrating the means for supporting and guarding the razor-blade; and Fig. 6 is a section on the plane indicated by the dotted line 6 6 of Fig. 4, illustrating the relation of the upper and lower guards to the edge of the blade.

It will be understood that the razor-blade A herein referred to has a continuous cutting edge like that of an ordinary razor, whether the same be straight or slightly curved, and is not a serrated or saw blade to coöperate with a serrated or toothed guard with a shearing action, the action of the blade in this construction being a true razor action—that is to say, the blade cuts on contact by the combined forward and transverse motions like the ordinary razor. In this device the razor-blade A has a rapidly-reciprocating motion in the direction of its length, and it will be obvious that the different kinds of motors and different arrangements of transmitting and supporting devices may be employed for the purpose. The arrangement shown in the accompanying drawings, however, is both practical and convenient. As there represented, there are supported upon the frame B of the device two electromagnets C and C', to which current is supplied from any suitable source, as indicated at D. Connection is made from the battery D through an ordinary flexible connector to suitable binding-posts E and E', from which connection is made with the electromagnets and a suitable vibrator in usual manner. The respective contacts for the electromagnets are indicated at f and f' and the vibrating arm at F. The armatures c and c' of the two electromagnets are carried by a cross-arm c^2, which is suitably pivoted upon the frame of the device. An arm c^3 is extended rearwardly from the arm c^2 and engages the vibrator-arm F, so that the circuit is automatically made and broken for each magnet in the usual manner, and the arm c^2 is caused to vibrate rapidly. An arm c^4 is extended forward from the arm c^2 and is connected to the razor-blade A in such a manner as to produce the required reciprocations thereof, as will be presently described.

The frame of the device is extended forward, as at B', to support and also to guard the razor-blade A, which is secured to a slide A', mounted in suitable ways in the extension or guard B'. A pin a on the slide A' engages the slotted end of the arm c^4 above referred to and completes the connection between the blade and the vibrating mechanism.

The extension B' of the frame constitutes the under guard for the blade, such under guard standing slightly below the plane of the razor edge and somewhat in the rear thereof, in order to afford a bearing and relieve the blade from the friction against the face and also prevent the cutting of the face. An upper guard B^2 may also be secured to a convenient support, as to the extension or lower

guard B', the edge of such upper guard projecting slightly beyond the edge of the blade and a very little beyond the plane of the blade, thereby making it impossible under any circumstances to cut the face. It will be observed that the edge of the lower guard and the edge of the upper guard, if one be used, are continuous and conform to the edge of the razor-blade, not being toothed or serrated.

A suitable shell on casing G incloses and protects the armatures, magnets, and connections, and at a convenient point a push-button H or other similar device is located, its contact being included in the main circuit, so that the movement of the blade can be started and stopped at will.

It will be obvious that the desired reciprocations of the razor-blade can be effected by other motors and by other mechanical devices than those shown and described herein. Therefore it is to be clearly understood that, except as may be indicated in the claims hereinafter, the invention is not to be restricted to the precise construction and arrangement shown.

I claim as my invention—

1. The combination with a razor-blade having a continuous edge, of a frame to support the same with freedom for longitudinal reciprocation and means to reciprocate said blade.

2. The combination with a razor-blade having a continuous edge, of a frame to support the same with freedom for longitudinal reciprocation, a guard having a continuous edge and conforming to the edge of the blade, and means to reciprocate said blade.

3. The combination with a razor-blade having a continuous edge, of a frame to support the same with freedom for longitudinal reciprocation, an under guard having a continuous edge conforming to the edge of the blade, an upper guard, and means to reciprocate said blade.

4. The combination with a razor-blade having a continuous edge, of a frame to support the same with freedom for longitudinal reciprocation, and electric actuating apparatus mounted on said frame and connected to said blade.

5. The combination with a razor-blade, of a frame to support the same with freedom for longitudinal reciprocation, a pair of electromagnets, a pivoted arm carrying the armatures of said magnets, a connection between said blade and said arm, and a vibrator to make and break the circuit through said magnets alternately.

This specification signed and witnessed this 13th day of September, A. D. 1898.

JOHN F. O'ROURKE.

In presence of—
A. N. JESBERA,
W. B. GREELEY.